



IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

**PATENT APPLICATION**

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Examiner: **Shawn M. BRADEN**

Title: **PRESSURIZABLE STRUCTURES COMPRISING DIFFERENT  
SURFACE SECTIONS**

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S I R:

**DECLARATION OF PROFESSOR ADRIAAN BUEKERS**

Professor Adriaan Beukers declares:

1. I am a citizen of the Netherlands, and named co-inventor of the invention that is the subject of the present United States Patent Application. I am a Professor of the Technical University of Delft, the Netherlands. The Technical University of Delft is the assignee of the present application.

2. I am submitting this Declaration in order to refute factual grounds for rejections of the present application that are set forth in the outstanding Office Action having

Appln. No. 10/523,878  
Declaration of Professor Adriaan Beukers  
Reply to Final Office Action dated Sept. 2, 2010

a mail date of September 2, 2010 (hereafter referred to as the "Office Action") that I have read. In that Office Action the U.S. Patent and Trademark Office rejected claim 23 under 35 U.S.C. § 112, first paragraph as allegedly lacking support in the specification for amended language "unitized integrally formed gas or fluid tight body". Claims 23-27 and 39-44 were also under 35 U.S.C. § 102(b) as being allegedly anticipated by European Patent Application No. 0 626 338 A1, hereafter referred to as "EP 338". I am a named co-inventor of the EP 338 publication, which I note in the Office Action is referred to throughout as "Beukers". I have read and understand the outstanding September 2, 2010 Office Action, my present patent application as published document WO 2004/015312, and the EP 338 patent; thus I am competent to make factual assertions about the contents of all three documents.

3. This Declaration is intended to refute factual grounds for both the outstanding § 112 and § 102(b) rejections.

4. First, with respect to the "lack of support" rejection under § 112 the recitation "unitized integrally formed gas or fluid tight body" is intended to mean a single-piece over-wound bladder structure as opposed to multiple bladders subsequently over-wound by commonly shared webbing. If the Examiner is of the opinion that "unitized" is inconsistent with the intention of "single-piece" structure, then I personally have no objection to deletion of "unitized" from claim 23. The remainder of the claim recitation in dispute, "gas or fluid tight body" is

Appln. No. 10/523,878  
Declaration of Professor Adriaan Beukers  
Reply to Final Office Action dated Sept. 2, 2010

literally supported verbatim by the present application specification, published WO 2004/015312 page 1, lines 3-5, which state:

"The invention relates to pressurizable structures comprising a gas-or fluid-tight body overwound with a number of fibre filaments, whereby the radius of the body varies along a rotation-symmetrical axis of the structure" (emphasis added).

5. The intent behind the quoted text, page 1, lines 3-5, in Paragraph 4, above is to describe the invention as a single continuous over-wound bladder. Additional support for this interpretation appears at Fig. 4, top left structure and Fig. 14, the necked portion transition between convex and concave surface. Page 1, lines 12-15 of WO 2004/015312 describe the structure as having a varying diameter along its length comprising a number of convex surface sections. Therefore it is one integral structure having at least one concave and one convex surface section, as recited in claim 23. That is what is meant by "integrally formed" in my present application.

6. For the foregoing reasons stated in Paragraphs 4 and 5 of this Declaration, "integrally formed gas or fluid tight body" as set forth in claim 23 is supported by the specification text and drawings, as filed and subsequently published in WO 2004/015312.

7. Turning now to the rejections of the claims under § 102(b), all of those rejections are based on my own prior

EP 338 patent. As stated above, I am personally knowledgeable about the contents of both my own prior EP 338 patent and the present application. They are different inventions.

8. In Paragraph 6 of the Office Action, the Examiner takes the position that Figures 10 and 11b of the EP 338 patent show the body as "being over-wound as an isotensoide", further citing page 2, line 58 and page 4, line 12 of that publication. Based on my own personal knowledge, the invention described in my EP 338 patent is a single bag with elliptical shape having an over-winding. Nothing in Figures 10 and 11b or the quoted specification text lines is inconsistent with my interpretation of a single bag with elliptical shape having an over-winding. Both Figures 10 and 11b show stacks of single elliptical bags. References to the specification text cited by the Examiner describe structure of a single elliptical bag.

9. In the EP 338 patented invention, as described in that specification, a multiple number of these separate, discrete bags (finished products) can be combined, but the specification does not describe combining those discrete bag structures by common over-winding, with all of them into an integral structure comprising at least one convex surface section and at least one concave surface section, as is claimed in my present invention claim 23. The difference in the present invention is that as claimed, the integral structure, comprising both convex and concave sections, is over-wound. In the previous Patent EP 338

this was only an over-wound single gouda-cheese like shape, without any concave portions defined by the structure. Multiple of the separate bags (finished products) shown in the EP 338 patent can be connected, but not as claimed in the present invention claim 23. In EP 338 is clearly described on page 4, lines 51-56 how two or more bags (plural term) can be combined. Furthermore, it describes the option to connect the interior of the various bags (again, plural term). Therefore, there is no structure mentioned having a concave surface section in EP 338, because separate abutting elliptical bags have a surface discontinuity at their respective abutting faces, with no integral concave structure positioned between convex structures.

10. At time of filing of EP 338, the invention therein was only separate discrete bags over-wound singly, as shown in Fig. 4 and the first single bag of Fig. 10. The bags had to be attached to each other via accessory devices as described in EP 338, page 4, lines 57-58. It is noted that the two-and three-bag structural combinations in Fig. 10 are merely single bags stacked and joined together externally by the lift capacity enhancers of Fig. 4 or other similar accessory devices. Specifically the two and three bag structural combinations of Fig. 10 are not a plurality of unitary construction convex and concave portions commonly over-wound as recited in claim 23. Stacking of the single elliptical bags in the EP 338 patent results in discontinuities between abutting bag ends rather than a commonly joining concave surface between two convex

surfaces and common over-winding over all of those surfaces as is required in claim 23.

11. At time of filing of EP 338 the invention therein did not contemplate over-winding a bag comprising multiple convex surface sections and at least one concave surface section with a continuous over-winding to form an integrated unit.

12. The Examiner's observation in Paragraph 6 of the Office Action: "[P]age 4 line 54, Beukers [EP 338] discusses the interior of the bags being connected, thus being over-wound as a whole, Fig. 11a [presumed to mean Fig. 11b] shows a whole unitized body on the second tier" is incorrect. The conclusion "thus being over-wound as a whole" is incorrect and no ground for this assumption can be found in EP 338. It only states that two bags (finished products) can be combined and their interiors can be connected for means of fluid communication e.g., by joining the valves of Fig. 4 of multiple discrete bags via pneumatic hose or the like for pressure equalization. Furthermore it must be understood in the context of all of page 4, lines 48-58. All joining of bags was to be consistent with lines 48-49 as the general principle of need for coupling two or more bags in a rigid or flexible way through specifically designed accessories.

13. Specifically, EP 338 Fig. 11b first and second tiers show in a simplified schematic figure three discrete, separate elliptical profile bags in abutting relationship

Appln. No. 10/523,878  
Declaration of Professor Adriaan Beukers  
Reply to Final Office Action dated Sept. 2, 2010

in each tier, held in relative position by the accessory bars rectangular shapes connected to the bag poles. Abutting edges of bags would flatten out against each other due to redistribution of pressure. Fig. 11b first and second tiers does not depict a single unitary bladder having two concave and three convex sections or for that matter three discrete separate bladder bags having a common continuous over-winding. Fig. 11b shows three separate, discrete over-wound bags in abutting relationship: they are not commonly over-wound. Thus what is erroneously perceived as three commonly wound bags in reality does not have a continuous winding over the concave portions, because there is a winding discontinuity where the abutting bags appear to define a narrow, concave neck. The "neck" is reality two separate abutting bags without common over-winding.

14. The Office Action misassumption that my EP 338 patent publication shows common over-winding of elliptical bags appears to me to be the justification for the remaining grounds for rejection of the other pending claims 24-27 and 39-44, as set forth in Paragraphs 7-16 of the Office Action, as well as the counter-argument citations to the EP 338 patent in Paragraph 20 of the Office Action. As presently claimed in claim 23 of this application, the basic structure comprises at least one and often multiple convex surface sections and at least one concave surface section. This entire structure is over-wound as a whole forming the end product e.g., a single bag comprising an integral structure comprising at least one convex surface

section and at least one concave surface section.  
Therefore, consistent with my factual assertions, the following statements in Office Action paragraphs 7-10 concerning interpretation of my EP 338 publication are incorrect for the following additional reasons.

15. Office Action paragraph 7, concerning claim 24, is incorrect for the following reason: what the Examiner perceives as a hyperboloid between the bellows in EP 338 is not a unitary over-winding but rather two separate, discrete over-wound bags in abutting contact via lift capacity enhancer accessory devices. The discontinuity between abutting bags makes formation of a hyperboloid impossible.

16. Office Action paragraph 8, concerning claim 25, is incorrect for the following reason: the over-winding referred to in EP 338 means a single ellipsoidal bag that alone does not define concave portions as required by parent claim 23. Two paired, abutting bags have a surface discontinuity between them, hence no concave portion or common over-winding between discrete bags.

17. Office Action paragraph 9, concerning claim 26, is incorrect for the following reason: fiber orientation substantially perpendicular with respect to the rotation-symmetrical axis in EP 338 Fig. 8 would only result in a single ellipsoidal bag that alone does not define concave portions as required by pending parent claim 23, and the fibers would not span across two discrete elliptical bags.

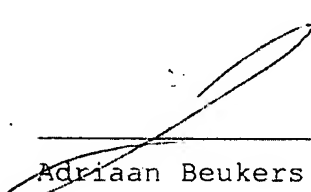


Appln. No. 10/523,878  
Declaration of Professor Adriaan Beukers  
Reply to Final Office Action dated Sept. 2, 2010

18. Office Action paragraph 10, concerning claim 27 fiber orientation, is incorrect for the following reason: The winding shown in Fig. 8 of the EP 338 patent always faces the same side of the fiber in only one of the in or out directions. Each bag has a separate winding. There is no bridging concave surface section or common over-winding in EP 338 Fig. 8 that would enable winding fiber side reversal.

19. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: November 12, 2010

  
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